PROCEEDINGS

OF THE

SCIENTIFIC MEETINGS

OF THE

ZOOLOGICAL SOCIETY OF LONDON.

January 3, 1871.

Professor Huxley, F.R.S., V.P., in the Chair.

Professor Flower exhibited and made remarks on a mounted skull of the common Sturgeon (*Acipenser sturio*), from the Museum of the Royal College of Surgeons. In this specimen, which had been prepared with great care by Mr. James Flower, the cartilaginous portions of the skull had been replaced by exact models of them made in wood, so that a much more complete idea could be gained of the whole structure than in ordinary examples.

Mr. Tegetmeier exhibited and made remarks on a specimen (in the flesh) of a female of the Great Bustard (*Otis tarda*), which had been killed on the 29th ult. near Feltham in Middlesex.

Mr. Gould exhibited and made remarks on a skin of Lady Rosse's Touraco (*Musophaga rossiæ*), just received in a collection of birds from Loanda. But one specimen of this rare bird was hitherto known to exist in scientific collections, namely that formerly living in Lady Rosse's possession, upon which Mr. Gould had founded the species in 1851*.

Mr. A. R. Wallace, F.Z.S., read the following extracts from letters of Mr. John Wallace :—

"Stockton, California, May 1870.

"There is common on dry sandy plains a small animal known

* See P. Z. S. 1851, p. 93.

here as the 'Horned Toad,' but which is a Lizard (*Phrynosoma*, sp.?), having a broad body and short tail, covered all over with horny protubérances, and on the head five or six short and stout horns arranged like a crown. Under certain circumstances, apparently as a means of defence, this creature squirts out from one of its eyes a jet of bright-red liquid very much like blood. This I have observed three times from three different individuals, although I have caught many that did not do it. They do not generally use this defence when first captured, although I caught one a few days ago which squirted the liquid a distance of six inches over the back of my hand, and another ejected it when I flourished a bright knife before its eyes."

"October 1870.

"I have not got hold of a *Phrynosoma* lately, though they are common both in the mountains and the plains. It is only rarely that you can observe the squirting of the red liquid from the eye, as I have frequently tried to produce it and failed. I think it must come from the eye, as there appears to be no other place where it could come from." * * * *

"With regard to Rattlesnakes, I have caught and killed dozens of them when I was in the mountains. When first seen or disturbed they are generally coiled up, with the tail erected in the centre of the coil, vibrating rapidly, so that it scarcely appears to move at all, the head slightly erected towards the point of danger. If not immediately attacked they will work themselves backwards, without altering the relative position of the head and tail, still rattling. The sound, as near as I can recollect, is more like the singing of a cricket in the fields than any thing else—perhaps not so high a pitch, and a little more tremulous."

Mr. A. R. Wallace stated that a lady who had resided in the southern states of North America had also compared the sound of the rattle when heard in the woods to the chirping of an insect; and if this was the case, and the animal made the noise when coiled up and *before being disturbed*, it would go far to explain the use of the rattle, which would be simply a decoy to insectivorous animals, to enable the sluggish serpent to capture them.

The Secretary read some extracts from some correspondence which had taken place between himself and Mr. G. W. des Vœux, Administrator of the Government of Santa Lucia, concerning the best method to be adopted for the destruction of the so-called "Rat-tailed" Serpent (*Trigonocephalus lanceolatus*), the well-known pest of that and the adjacent West-Indian islands. Mr. des Vœux had inquired whether it would be possible (or if possible, of advantage) to introduce the Mungoose (*Herpestes*), the Secretary-bird (*Secretarius reptilivorus*), or the Laughing Kingfisher (*Dacelo gigas*) into the island for this purpose. Mr. Sclater had replied that, under the circumstances mentioned by Mr. des Vœux, he thought that the Mungoose would be the most likely of the three to succeed, but

that he feared that this animal would be more prone to destroy the domestic fowls of the inhabitants than the much-detested serpents, and had recommended that a sufficient reward should be offered for the destruction of these snakes, instead of any of the above-mentioned plans. At the same time, Mr. Sclater had forwarded to Mr. des Vœux a pair of the common Indian Mungoose (*Herpestes griseus*) from the Society's collection, in order that the experiment as to whether these animals would destroy the *Trigonocephalus* might be tried.

A recent communication from Mr. des Vœux, dated Government House, Santa Lucia, December 2nd, 1870, gave the following details of an encounter between one of these Mungooses and a snake of the above species.

"A 'Rat-tail' some twenty inches in length was produced in a glass jar, the mouth of which was secured with a piece of linen. The Mungoose was brought out and its cage opened; the jar was held out to it. As soon as it perceived the snake inside it became greatly excited, its fur presenting the appearance of that of a cat with 'its back up,' and its thick tail distended and bristling. It evinced intense eagerness to get at the snake by running round and round the jar, and tearing at the cloth over the opening with its teeth and claws. On the covering being removed the serpent sprung out upon the lawn, and advanced a few feet on the grass. The Mungoose at once attacked it, endeavouring to fix its teeth and claws in the back; but the snake seemed prepared for this style of attack, which he avoided by drawing his body suddenly back. Rapidly recovering himself, however, he darted at his active little enemy and apparently succeeded in touching it with his fangs, for the Mungoose with a sharp cry sprung suddenly about a foot from the ground, but alighting upon the back of the snake bit and tore at it savagely. A short struggle ensued, the position of the snake not allowing him to use his fangs; and upon the combatants separating, the snake crawled a few yards away, and his opponent began running in an apparently aimless manner about the lawn. This lasted some three or four minutes, during which time the snake crawled along with difficulty, seeming anxious to get away, and then remained quite still. Suddenly the Mungoose returned, seized the snake by the middle of the body and dragged him into its cage which was standing open. The Rat-tail did not give any signs of life after this operation. On gaining the cage the Mungoose proceeded leisurely to eat the serpent, commencing with the head, its sharp teeth crunching through bones and all. The cage was then closed, and every one retired with very little expectation of seeing the plucky little animal alive again.

"In about an hour's time the cage was reopened, and the hero of this battle coolly trotted out, showing no signs of being at all the worse for the fight.

"Upon examining the interior of the cage, which was quite clean, the only evidence which remained of the snake having been there was a small piece of his tail not quite two inches in length, which

had doubtless been rejected as being less succulent than the remainder of his carcass.

"The Mungoose is at this moment just as brisk and lively as before the encounter, though a fortnight has now elapsed since it took place.

"It has defied all attempts to examine whether or not it was wounded, and if so to what extent.

"The serpent was not full-grown, but was of a size quite sufficient for its bite to have caused the death of a man in a few hours."

Mr. Sclater was well aware that similar experiments to this above recorded had been made more than once, and that similar results had followed, but had never heard any satisfactory explanation given of how it came to pass that the Mungoose was not injured, if it was really bitten by the Serpent.

A tenth letter on the Ornithology of Buenos Ayres, addressed to the Secretary by Mr. W. H. Hudson, C.M.Z.S., was read :—

"Buenos Ayres, August 21, 1870.

"Dear Sir,—People in Buenos Ayres are as familiar with the Gaviota (*Larus cirrhocephalus*) as with the domestic poultry about their houses. It is one of the trio of our commonest species, the other two being the *Teru* and the *Chimango*. But these two are exclusively land birds, and to make their acquaintance it is also necessary to go a few miles out of a great crowded city. Not so with the Gaviota, whose white graceful form is not more familiar to the gaucho dwelling far off on the inland plains, than to the sailors in every ship that navigates the river Plata, or to the townsman, who may know it well without ever having left the city's pavement.

"In October these birds congregate in vast numbers in their breeding-places, which are marshes covered with some aquatic plant, usually the loose growing *junco*. These reeds are much bent and broken down by the Gulls, and are used as material for their nests, which are placed on the water close together. The female lays four oblong eggs, large for the bird, obtusely pointed, of a pale clay-colour, thickly spotted at the large end with dull black.

"Every morning, at break of day, the Gulls rise up from their nests and hover over the marsh, uttering loud cries and producing a noise that may be heard distinctly two or three miles away. The eggs are excellent eating, resembling those of the Plover in delicacy of flavour, as well as in the lustrous pearl colour which the white assumes when boiled. From the circumstance of such large numbers of Gulls laying their eggs near together, it is a very easy task to get them; so that when the plains adjacent to their favourite spots become settled, they have but little chance of rearing their young, as the boys in the neighbourhood ride in and gather them every morning. The Gulls, however, are so tenacious of their breeding-places that they continue to resort to them every summer to lay, and only abandon them after several years persecution, or, as often happens, on the marsh drying up. But notwithstanding such quantities of their

eggs are taken every year, the Gulls do not seem to diminish in numbers. The abundance of their food in the settled districts favours them greatly in their 'struggle for existence.'

"The young birds are of a pale grey colour mottled with dull brown, and have a whining querulous note. The plumage becomes gradually lighter through the autumn, winter, and spring; but it must be a year at least before they are perfectly like the adults in the fine ash-blue of the wings, and in the white bosom with its lovely perceptible blush. It is now ten months since the young were fledged, and yet, in a flock, an observer at a hundred yards distance can easily distinguish them from the old birds.

"So soon as the young birds are able to fly, the breeding-place is forsaken, the whole concourse leaving in a body, or scattering in all directions over the surrounding country; and until the following summer, the movements of the birds depend altogether on food and water. As I mentioned in my last letter, in seasons of drought they disappear totally, and when Grashoppers are very abundant appear in countless multitudes. Drought and Grasshoppers unfortunately often come together, so that the Gulls are not so useful as they would otherwise be. In dry summers, when the insects are abundant, it is common to hear people wish for rain, that the Gulls might come and devour the Locusts. Apparently Gulls have been useful to man in the same way on the western plains of North America*.

"The Gulls congregate in great numbers about ploughed grounds, filling the new-made furrow till it appears like a white line, hovering in a cloud over the ploughman's head, and following at his heels, fighting, screaming, buffeting, in a compact crowd. When feeding they invariably keep up a great noise and screaming. Wilson's expression in describing a northern species, that its cry 'is like the excessive laugh of a negro,' is also descriptive of the language of our bird. Its peculiar cry is lengthened and inflected a thousand ways, and interspersed with numerous short notes like excited exclamations. When their hunger is satisfied they fly to the nearest water, where they drink and bathe their feathers. Their ablutions over (in which they appear to take great delight), they retire to some open spot in the neighbourhood abounding in short green grass. Here they sit close together with their bills to the wind; in still weather they also all look one way; and the observer will watch the flock in vain to find one individual out of this beautiful order. It is remarkable that they do not stand up to take flight, but rise on the air directly from a sitting posture. Usually they flap their wings twice or thrice before the body is raised from the ground.

"In some seasons in August and September, after a period of rainy

* "This I infer from a passage in Dixon's 'New America.' Speaking of the hardships the Mormons endured when first settling on Salt Lake, he tells us that the locusts eat down the grain as fast as it grew, but that this evil was finally overcome by their devices to trap the insects, and 'with the help of Gulls from the lake.'"

warm weather, the larvæ of our Great-horned Beetle rise to the surface, throwing up little mounds of earth as Moles do; often they are so numerous as to give the plains, where the grass is very closely cropped, the appearance of being covered with mud. These insects afford a rich harvest to the *Teru-teru* (*Vanellus cayennensis*), which in such plentiful seasons are to be seen all day diligently running about, probing and dislodging them from under the fresh hillocks. The Gulls, not having been endowed with a probing bill, avail themselves of their superior cunning and violence to rob the *Terus*. I have often watched their proceedings for hours with the greatest interest. Many hundred *Terus* are perhaps visible running busily about the plain on all sides; near each one a Gull is quietly standing regarding his intended dupe with the closest attention. The instant a great white larva is extracted, the Gull darts with such sudden fury to seize it, that the *Teru* is forced to take wing, and a violent chase ensues. The depredator follows close upon the Plover in all his turns, screaming all the time, until the *Teru*, frightened or tired out, drops the prize, and slopes towards the earth with a disappointed cry; instantly the pursuer's flight is checked, he hovers a moment, watching the worm fall, then straight and suddenly drops himself after it, swallows it with customary greediness, and hastens after the *Teru* to resume his watch.

"Many Gulls constantly hover about the *Estancias* to feed on the garbage that is usually found in abundance about cattle-breeding establishments. When a cow is slaughtered they collect in great numbers, and quarrel with the domestic fowls over the offal. They are also faithful attendants at the shepherd's hut; and if a dead lamb remains in the fold when the flock goes to pasture, they regale on its carcass in company with the *Chimango*. Numbers of them are constantly seen soaring over the low shores of the river, and, when the tide goes out, quarrel on the sands over dead fish, stranded fry, or whatever animal refuse may have been left.

"The slaughter-grounds adjacent to the city are also haunted by hosts of these neat and beautiful scavengers. Here numbers may be seen hovering overhead, and mingling their excited cries with the bellowing of thousands of wild cattle and the shouts of men at their rough work—at intervals, wherever a little space is afforded, dropping themselves on to the ground reeking with clotted blood and entrails, greedily snatching up whatever morsels they can on the instant, and yet getting no speck or stain on their delicate dress of lily white and ethereal blue.

"It is only when their food is very abundant that the Gulls move in great bodies; at other times they are seen singly or in small parties; but at night they often congregate in myriads in some large pool, where they will sometimes keep up a great screaming until morning.

"Their curiosity or anger seems greatly excited by the appearance of a person on foot on the open plains; no sooner has the Gull spied him, than he sweeps toward him with a rapid flight, uttering loud indignant screams, that invariably attract all its fellows within

hearing. These all pass and repass, hovering over the pedestrian's head, screaming all the time as if highly incensed, and finally retire, joining their voices in a sort of chorus, and waving their wings upward in a very singular fashion; but often, when they are almost out of sight, they suddenly wheel about and hurry back with fresh zeal to go through the whole annoying performance again. Their flight being so serene at such times, it is very easy to shoot them. Many persons, however, and particularly English residents, have a squeamish repugnance against eating their flesh. But the flavour of birds does not seem to depend altogether on their peculiar food; two species are sometimes equally good that feed very differently. The Burrowing Parrot (*Conurus patachonicus*) is very bitter in taste, and yet feeds on the same seeds as the Partridge and wild Pigeon; the Glossy Ibis eats the same food as the most delicious-flavoured Snipes, and yet, when cooked, its fat emits a sickening smell that renders it unfit for human food. Those who have eaten this Gull have found it rich and fine-flavoured, without any taint of rankness.

"The Gulls seem everywhere preeminent among the feathered race for the singular beauty of their flight. Our bird forms no exception, but all its aërial movements are characterized with the same grace and buoyancy that have been observed in the allied species in other continents. On a still, hot day they love to soar to a vast height, and at such times appear like diminutive white specks on the sky. In fair weather their flight is always placid, a large body of them seen at a distance appearing to travel with the serene motion of a cloud.

"When near, it is pleasing to see the wonderful precision with which each bird keeps its relative place in the flock. But it is in a high wind the Gull's flight is particularly interesting; casually observed it seems altogether wild and irregular. The bird toils onward, alternately turning the upper and under surface of its wings, now struck motionless in mid-air, and again sweeping onward with redoubled velocity, now dropping downward until it nears the surface, and soaring anon toward the sky, apparently without an effort of its own, but borne aloft by the resistless violence of the wind."

The Secretary read the following extracts from a letter addressed to him by Mr. Edward P. Ramsay, dated Dobroyde, Nov. 4th, 1870:—

"The *Ceratodus forsteri* is found in the upper waters of the Burnet, Burrum, and Mary rivers, also in the creeks running into them as well as in the head-waters of the Fitzroy and Dawson, and in the deep lagoons and water-holes in those neighbourhoods.

"On the Gutchey Run, about thirty miles from Maryborough, is a water-hole, near the residence of Mr. Hilsham, in which these fishes are very numerous, and might be taken at almost any time. In the winter, however (from June to September), they go into a

sort of hybernation, and require to be stirred up preparatory to setting lines for them. In September they begin to be a trifle more lively; and, from accounts I have lately received from the Mary River, it seems they have all at once become very plentiful in the very water-holes where we had lines set for weeks before in August without getting a 'bite.' In fact they would not bite at all at that time, and the specimen I sent you was obtained in the Mary River, or rather in one of its upper branches. Now, however, they are caught almost daily. Their food consists of Mollusca (such as small specimens of *Cyclas*, *Anodon*, *Lymnæa*, and *Physa*), together with various water-weeds and grasses. It is highly probable that the natives' story of their coming out at night 'to graze' is quite correct, as I found in their intestines and stomachs *land grasses* which could only have been obtained by their coming at least partially out of the water. I am inclined to think that (like Eels) they may occasionally come out into the very shallow parts and edges of the water-holes, and even out on to the margins of the pools among the weeds and long grasses which hang over into the water.

"The stomach is curiously divided into compartments, each filled with food—grass, weeds, shells, &c. I am not sufficiently acquainted with the internal arrangements of animals to make any remarks upon this part of the subject; but I feel convinced that a close examination of the heart and lungs will prove that the *Ceratodus* is much more akin to the Batrachians than most of us are aware of.

"My brother John has gone up to our sugar-plantations on the Mary, and as the *Ceratodus* is obtainable within ten miles of our residence, I hope very soon to have living specimens down; it is his intention to keep them alive in a large tank, both *males and females*, and to watch their habits.

"Mr. S. B. Davis of Rockampton has been making great exertions to obtain me specimens from the Fitzroy, and has made several trips also to the Dawson; but unfortunately the distressing floods they have had there have prevented him obtaining any. The only fishes obtained were a few of the true Barramundi (*Osteoglossum leichardti*), which will be forwarded to me in due time. He informs me that the *Ceratodus* is plentiful in the water-holes, creeks, and lagoons in the western waters.

"I will forward you other specimens as soon as possible from various districts for comparison, and shall be glad to hear what your great ichthyologists think of them."

Mr. Sclater exhibited a horn of the male Indian Rhinoceros (*Rhinoceros unicornis*) living in the Society's Menagerie, which had been torn off by the animal on the 10th of August last—and made the following observations:—

"Our male and female Indian Rhinoceroses having been placed in the adjoining yards, in front of the new Elephant-house, on the 10th of August last the male made frequent attempts to raise the lower transverse bar of the strong iron railing that separates the two

enclosures, by placing his horn under it. After repeating these attempts several times, in spite of the interference of the keepers, his efforts were such that the horn became suddenly detached under the violent pressure to which it was subjected, and rolled off into the yard. The animal appeared to be much hurt, and roared lustily for a few minutes. There was a considerable loss of blood from the wound, which, however, healed in a few days, neat's-foot oil being applied to it to keep off the flies.

Fig. 1.

Head of male Rhinoceros before the horn was torn off (August 10th, 1870).

"The horn, as will be seen (fig. 1), measures about 12 inches in length along its anterior surface, which curves gradually backward; the widened base is $8\frac{1}{4}$ inches in long diameter, and $5\frac{1}{2}$ inches across. The lower surface presents a considerable cavity, about $1\frac{3}{4}$ inch in depth, upon examining which it is clearly seen that the whole horn has been cleanly torn away from the matrix.

"Very soon after the loss of the old horn, we observed indications that a new horn was forming. This has increased rapidly in size, and is now already perhaps $1\frac{1}{2}$ inch in height. It is thus certain that the Rhinoceros has the power of reproducing its horn, after the existing one has been broken off. I am well aware that this fact has already been noticed by different explorers and observers;

moreover Mr. Blyth has informed us (see 'Field,' Aug. 20, 1870, p. 173) that several years ago an accident similar to what has been here recorded occurred to an animal of the same species in the Zoological Gardens at Moscow, and that in this case likewise the

Fig. 2.

Head of male Rhinoceros, with new horn growing (January 3rd, 1871).

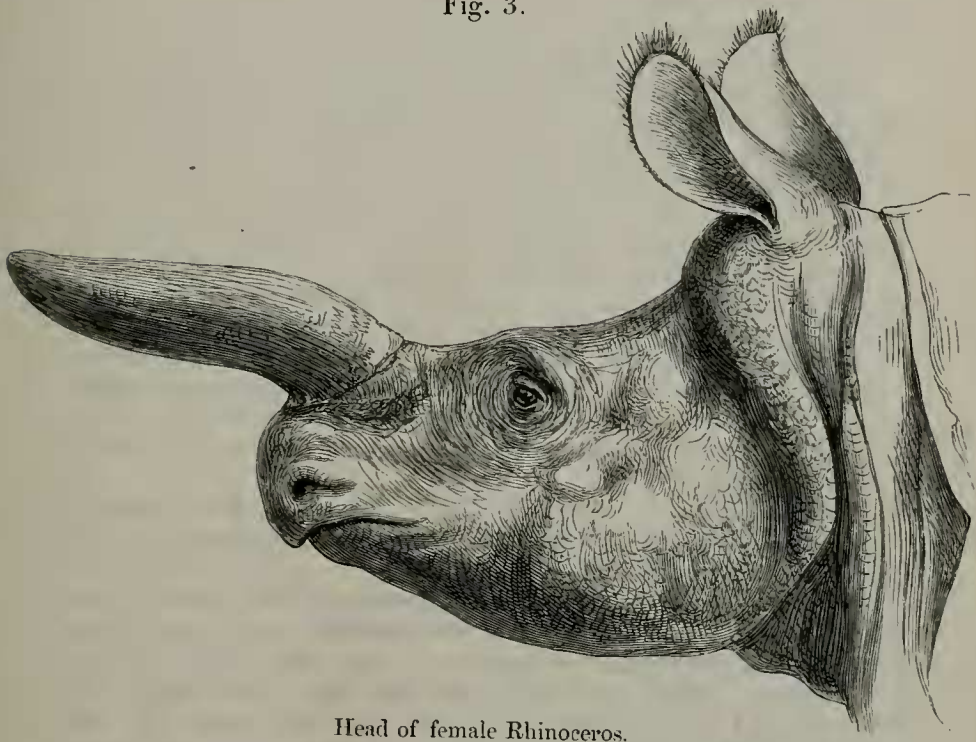
horn grew again. I have nevertheless thought that the present occurrence is well worthy of a place among the records of the Society. It is notorious that the reproduced horn of an animal is liable to be materially different in structure from the normal horn; and it is very possibly due to some such accident as above mentioned, that we have been favoured with the creation of certain new species of Rhinoceroses that have been based upon horns alone*.

"In further illustration of this subject, I beg leave to exhibit a drawing of the present state of the horn of our old female Rhinoceros, which has now been in the Gardens since 1850 (see fig. 3). Instead of rising nearly perpendicularly from the nose, as in the ordinary form of this species, the horn in this animal projects forward beyond the end of the nostrils, and has now attained a length of 18 inches or thereabouts. This may perhaps be due to the practice indulged in by this animal for several years of grinding

* *Rhinoceros crossii*, Gray, P. Z. S. 1854, p. 250, based upon an anterior horn of *R. sumatranus* (*cf.* Blyth, P. Z. S. 1852, p. 1). and *R. oswellii*, Gray, P. Z. S. 1853, p. 46, which is probably the same as *R. simus*.

down her horn against the bars of her cage; for it is only within the last few years that this appendage has grown into its present shape. But it is obvious that nearly similar circumstances might occur in

Fig. 3.



Head of female Rhinoceros.

a state of nature, and that the horn thus developed would suffice for the foundation of a new species equally well with those already referred to."

The following papers were read:—

1. Note regarding the Young Stage of the Sterlet (*Acipenser ruthenus*). By Andrew Murray, F.L.S.

[Received December 16, 1870.]

During the last summer I made an attempt to introduce the Sterlet from Russia into Britain by importing artificially impregnated ova, which was so far successful that I turned loose, in the Duke of Sutherland's river Fleet, from 150 to 200 lively young Sterlets which had come out on the voyage. I gave an account of my proceedings in two papers which appeared lately in 'The Field,' and to these I would refer any one who desires information regarding the practical part of the business. In the course of the experiment, however, two scientific observations were made which seem worthy

of being placed upon record. The gentleman who was intrusted with the duty of procuring the ova, and who undertook a journey of 900 miles to the Wolga to get them, was Dr. Knoch, an experienced Russian pisciculturalist and able ichthyologist. I published his account of his journey in the papers I have above alluded to. In addition to the practical details and narrative there contained, he made the following observation regarding the micropyle of the ovum :—

"The assertion made by Professors Owsjanikow and Wagner and Mr. Kowalewsky, and contained in the Bulletin of the Academy of Sciences of St. Petersburg for June 29th, 1869, viz. that 'the micropyle-apparatus consists of seven micropyle openings grouped round a pole, of which one is situated in the centre, whilst the remaining six surround it in the form of a circle,' is not correct and is contrary to all previous experience. In direct opposition to the micropyle structure of these gentlemen, and in most perfect harmony with my observations on the eggs of other fish, was the proof which I had later an opportunity of giving, that in the eggs of the Sterlet, as well as in those of all other red fish (*Acipenserini*), the micropyle consists of a (towards the outside) *funnel-shaped, widened and simple canal*, and not by any means, as those *savants* assert, composed of several (seven) openings."

It is satisfactory to have this distinctly settled; for it certainly seemed a most unnecessary superfluity, whether of obstacles or openings, to have seven instead of one.

The other point is still more remarkable and unexpected. Dr. Knoch says, "Allow me to draw your attention to one very interesting circumstance which surprised us during the development of the Sterlet. Accustomed to the toothless jaw of the Sterlet and Sturgeon in a more advanced stage, we were not prepared to find teeth in the early stage of these fishes. We found, however, immediately behind the lips of the Sterlet just escaped from the egg, eighteen pretty strong and curved teeth; and when in their lively movements in the water they sometimes fall upon each other with their teeth, it is no easy matter to separate them."

Not being aware of this remarkable fact when I had the young Sterlets in my hands, I did not think of examining them in relation to it; nor did I observe any thing like them seizing each other; but my period of observation was necessarily very limited, my great anxiety being to shorten the period they were in my hands as much as possible, and get them safe into the keeping of nature in a flowing stream. I had, however, preserved two or three young specimens in spirits, and I have endeavoured to verify Dr. Knoch's observation upon these, but without success. My failure to do so, however, says nothing against the accuracy of his observation; for we all know how the tissues alter when preserved in spirits, and how much more difficult it is to make any delicate anatomical investigations upon specimens which have been so preserved.

Dr. Knoch adds that the barbles which characterize the *Acipenser* tribe are, in the young Sterlets, not fringed on the inside. I should say that, although this seems to be the rule, in one under

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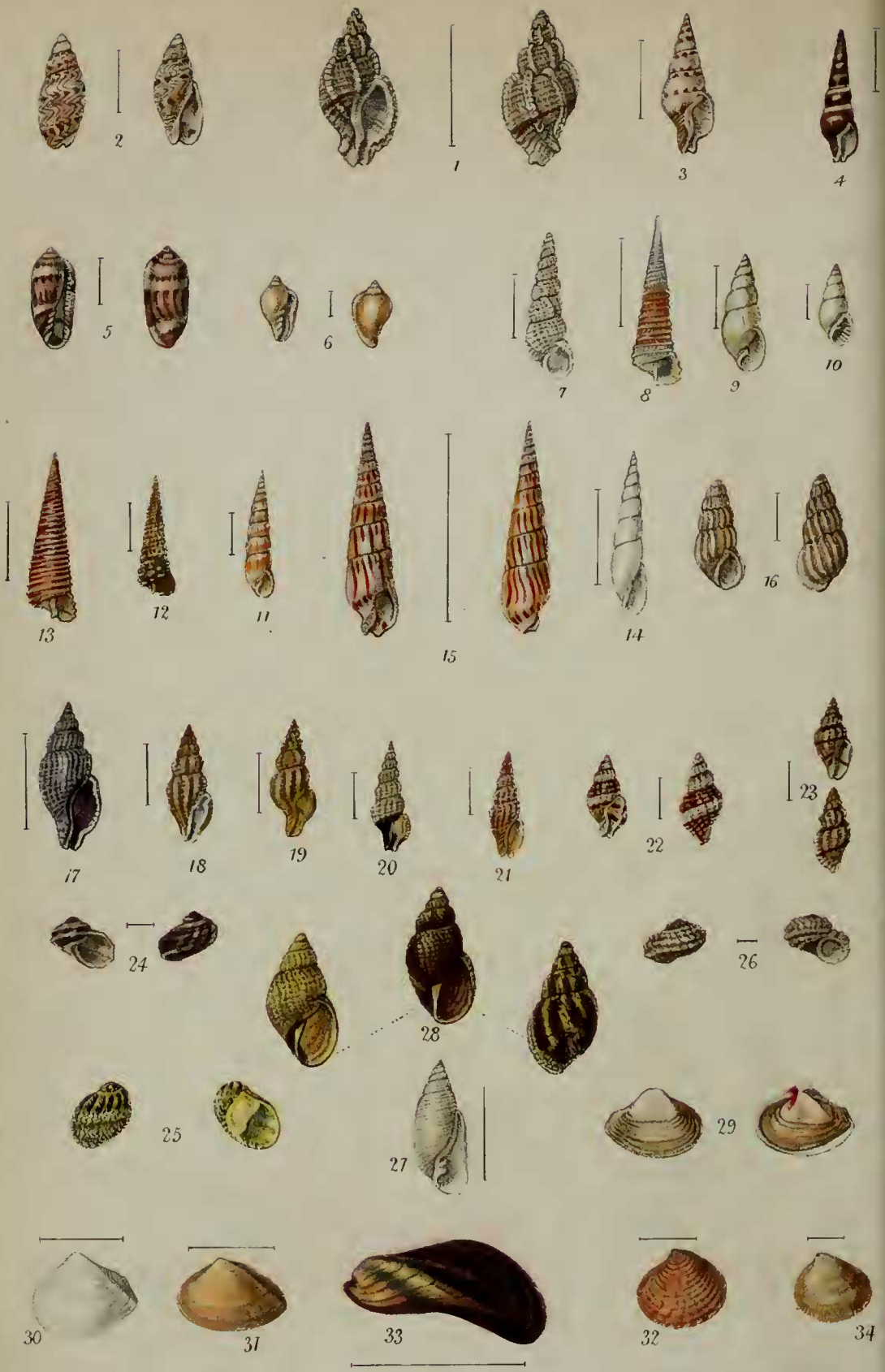

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NEW AUSTRALIAN SHELLS

pressure I saw what seemed to me something like two or three lateral barblets appearing on one side of a barble.

When the ova arrived many of them were covered by a forest of minute fungi. I submitted these to Mr. Berkeley, who informs me that "the matter on the fish-ova is a *Saprolegnia*; there being only one kind of fruit, and that scarcely perfect, I cannot tell the species. The curious point is, that it is accompanied by a mucor, probably a condition of the *Saprolegnia* (or the reverse), with quadrate spores, which I never saw before."

2. Descriptions of thirty-four new Species of Shells from Australia. By George French Angas, Corr. Mem. Z.S.L., F.L.S., F.R.G.S., &c.

[Received December 5, 1870.]

(Plate I.)

1. Triton (Cumia) speciosa, n. sp. (Plate I. fig. 1.)

Shell ovately fusiform, moderately solid, with from twenty to twenty-two conspicuous, erect, rounded varices; whitish, sometimes with a narrow zone of pale chestnut on the lower portion of the last whorl; whorls $5\frac{1}{2}$, encircled throughout with concentric ridges larger and smaller alternately, and decussated between the varices with sharp raised striæ, forming bead-like nodules at the intersection of the ridges; spire pointed; aperture ovate, white within; outer lip arcuate, thickened by a varix; columellar margin covered with a shining white callus; canal short, recurved.

Length 8 lines, breadth 4 lines.

Hab. Green Point, Watson's Bay, Port Jackson, at very low spring-tides (*Brazier*).

This elegantly sculptured shell appears to belong to a somewhat aberrant group of *Triton*, to which the subgeneric title of *Cumia* has been given, and of which the *Triton convolutus*, Brod., may be regarded as the type.

2. Olivella exquisita, n. sp. (Plate I. fig. 2.)

Shell ovately turreted, smooth, shining, pale brownish yellow, ornamented with three rows of irregular, rather distant, dark chestnut spots, one at the suture, the others near the centre and lower portion of the last whorl, and joined by fine pale chestnut undulating lines which are carried down to the base of the shell; whorls 5; sutures channelled; apex obtuse; outer lip a little thickened; columella slightly plicate anteriorly.

Length 4 lines, breadth $1\frac{1}{2}$ line.

Hab. Coodgee Bay, New S. Wales, in shell-sand (*Brazier*).

A very handsome little shell, the waved lines on the whorls reminding one of *Voluta undulata*.

3. Columbella (Mitrella) bicincta, n. sp. (Plate I. fig. 3.)

Shell fusiform, smooth, somewhat thin, of a pale brown colour throughout, with two narrow opaque white bands, irregularly articulated with orange-chestnut spots, situated above and below the margin of the sutures, the second band being in the centre of the last whorl, and with very faint longitudinal zigzag markings here and there, more distinct toward the base; whorls 8; sutures impressed; spire acuminated, longer than the aperture; aperture elongately ovate, rather short; outer lip sharp at the edge, thickened externally, and somewhat coarsely denticulated within; inner lip shining, with a few slightly elevated nodules, the edge nearly straight and erect; channel slightly curved and somewhat produced, transversely striated externally.

Length 5 lines, breadth 2 lines.

Hab. Port Jackson, dredged near Watson's Bay.

4. Columbella (Mitrella) attenuata, n. sp. (Plate I. fig. 4.)

Shell acuminately fusiform, moderately solid, smooth, shining, brown, with a pale band below the sutures; whorls 8, very slightly convex, the last grooved at the base; spire attenuated, blunt at the apex, apical whorls darker; sutures impressed; aperture small, subovate; outer lip simple, arcuate, contracted at the base, varixed behind, varix dark brown; columella nearly straight, callus slightly reflexed in front; canal short, a little recurved.

Length 4 lines, breadth 1 line.

Hab. Dredged near the "Sow and Pigs," Port Jackson (*Brazier*).

An elegant little species, distinguished by its very elongated form and its simple bands of light and dark brown.

5. Hyalina (Volvarina) mustelina, n. sp. (Plate I. fig. 5.)

Shell elongately ovate, light brown, with two grey bands bordered above and below with darker brown; spire short, apex obtuse: nucleolar whorls edged with dark brown; base rounded; aperture somewhat narrow; columellar lip a little arcuate below, with four equidistant plaits, the upper one nearly transverse, the others passing obliquely upwards; outer lip thickened, slightly inflexed, flatly varixed behind, cream-coloured, the brown bands passing over the varix, finely dentate at the inner edge with about twenty teeth.

Length $2\frac{1}{2}$ lines, breadth 1 line.

Hab. Dredged off the "Sow and Pigs," Port Jackson (*Brazier*).

6. Marginella ochracea, n. sp. (Plate I. fig. 6.)

Shell subtriangularly ovate, rather thin, smooth, shining, more or less of a pale straw-colour, and frequently with a faint orange effuse band next to the suture on the last whorl; whorls 4; spire obtusely conical, very blunt at the apex; aperture rather narrow; outer lip varixed and thickened in the middle, the varix of a paler colour than

the body-whorl; columella with four plaits, the posterior one a little obliquely descending.

Length $1\frac{1}{2}$ line, breadth 1 line.

Hab. From shell-sand, coast of New South Wales.

7. Scala (Cirsotrema) morchi, n. sp. (Plate I. fig. 7.)

Shell acuminate, solid, whitish; whorls 9, rounded, decussated with longitudinal ribs and more numerous transverse ridges, the longitudinal ones evanescent at the base; sutures impressed; aperture nearly circular, entire.

Length 5 lines, breadth 1 line.

Hab. Dredged near the "Sow and Pigs," Port Jackson (*Brazier*).

8. Mathilda elegantula, n. sp. (Plate I. fig. 8.)

Shell elongately acuminated, thin, semitransparent, whitish; whorls 14, nearly flat, each ornamented with three rounded transverse ribs, the one below the suture the smallest, the interstices between the ribs finely longitudinally striate; striæ raised and very thin; base of last whorl smooth and flattened; nucleolar whorl sinistral; aperture subquadrate; outer lip thin, acute; columella straight, a little produced in front.

Length $5\frac{1}{2}$ lines, breadth 1 line.

Hab. Dredged in Lane Cove Creek, Port Jackson (*Brazier*).

This exquisitely sculptured shell appears to belong to Semper's genus *Mathilda*, which he separates from *Eglesia* in consequence of the nucleolar whorl being sinistral. It, however, has much in common with the latter genus, the nucleolar whorl of its typical species not having, as far as I know, been yet observed.

9. Agatha australis, n. sp. (Plate I. fig. 9.)

Shell acuminately ovate, rather thin, opaque, whitish; whorls 8, slightly convex, suture a little canaliculated; spire acuminate, nucleus sinistral; aperture narrowly ovate; outer lip simple, thin; columella furnished with a strong spiral plait.

Length 4 lines, breadth $1\frac{1}{2}$ line.

Hab. Port Jackson, N. S. Wales. Dredged near "Sow and Pigs" reef.

10. Odostomia simplex, n. sp. (Plate I. fig. 10.)

Shell acuminately ovate, rather solid, smooth, whitish; whorls $7\frac{1}{2}$, rather flat, a little angulate at the sutures; spire acuminate; aperture subovate; outer lip simple, furnished within with elevated striæ; columella with a single sharp transverse plait.

Length 2 lines, breadth $\frac{3}{4}$ line.

Hab. Port Jackson, N. S. Wales. Dredged off "Sow and Pigs."

11. Syrnola tincta, n. sp. (Plate I. fig. 11.)

Shell subulate, rather solid, smooth, shining, whitish, irregularly banded and marked with brown; whorls $10\frac{1}{2}$, nearly flat; sutures

deeply impressed; aperture ovate; outer lip thin; columellar plait rather prominent.

Length 3 lines, breadth $\frac{1}{2}$ line.

Hab. Dredged off "Sow and Pigs," Port Jackson (*Brazier*).

12. Cerithiopsis clathrata, n. sp. (Plate I. fig. 12.)

Shell elongately acuminated, moderately thin, of a pale yellowish colour; whorls 12, encircled by three nearly equally distant rounded ribs, and decussated all over with close-set longitudinal, somewhat undulating raised striæ; sutures deeply impressed; base of last whorl finely radiately striated; nucleolar whorl sinistral; aperture subquadrate; outer lip thin; columella arcuate, scarcely produced in front.

Length 3 lines, breadth $\frac{3}{4}$ line.

Hab. Dredged near "Sow and Pigs" reef, Port Jackson (*Brazier*).

13. Cerithiopsis crocea, n. sp. (Plate I. fig. 13.)

Shell elongately acuminated, rather thin, orange-coloured throughout; whorls 14, encircled by rounded, close-set ribs, four to a whorl, nearly equal in size; the interstices, which are very narrow, finely longitudinally striated; last whorl flattened and smooth at the base; nucleolar whorl sinistral; aperture subquadrate; outer lip thin; columella tortuous, strongly arched and produced in front.

Length 5 lines, breadth $1\frac{1}{4}$ line.

Hab. Dredged off Camp Cove, Port Jackson (*Brazier*).

A species of a beautiful orange colour, with four ribs on each whorl, and the intercostal spaces very narrow and finely striated.

14. Leiostraca lesbia, n. sp. (Plate I. fig. 14.)

Shell aculeate, rather thin, smooth, shining, whitish, obscurely somewhat opaquely banded next below the sutures; whorls 12, nearly flat, suture distinct; spire sharply acuminate; aperture elongately ovate, slightly effuse in front; outer lip acute, simple; columella callous and slightly twisted.

Length 6 lines, breadth 1 line.

Hab. Dredged at "Sow and Pigs," Port Jackson.

15. Terebra (Hastula) brazieri, n. sp. (Plate I. fig. 15.)

Shell elongately turreted, narrow, acute at the apex, shining, pale straw-colour, irregularly painted with brownish orange longitudinal flames, strongest and most numerous next the suture, and with an interrupted zone of suffused brown spots near the base of the last whorl, above which the painting ceases abruptly, leaving a pale band above the zone; nucleolar whorls tinged with purplish brown; whorls 13, flat, obsoletely distantly plicate, rather nodose next the sutures; aperture narrowly ovate; outer lip thin, with the margin slightly sinuous; columella tortuous; canal short, somewhat everted.

Length 1 inch 2 lines, breadth 3 lines.

Hab. Brisbane Water, New South Wales (*Brazier*).

16. Rissoina crassa, n. sp. (Plate I. fig. 16.)

Shell pyramidally ovate, thick, whitish, strongly distantly longitudinally plicate; whorls 7 to 8, slightly rounded, suture impressed, the last whorl with a rounded ridge at the base, over which the longitudinal plications are continued; aperture subovate, strongly and obliquely sinuate in front; outer lip sharp, thickly variced behind; inner lip thickened, sinuous.

Length $3\frac{1}{2}$ lines, breadth 1 line.

Hab. From the "Bottle and Glass" rocks, under stones, Port Jackson (*Brazier*).

17. Clathurella hayesiana, n. sp. (Plate I. fig. 17.)

Shell ovately fusiform, rather solid, of a dull chalky-grey colour; whorls 7, angulated at the upper part, closely longitudinally ribbed and transversely ridged, forming flattened nodules at the points of intersection; spire sharp, apex purple; aperture elongately ovate, deep purple within; outer lip finely denticulated at the edge, contracted below; posterior sinus narrow and rather deep.

Length 6 lines, breadth $2\frac{1}{2}$ lines.

Hab. Dredged in Lane Cove, Port Jackson, New S. Wales (*Brazier*).

This elegant species differs from *C. reticosa*, A. Ad. & Angas, in having the whorls angulate at the upper part, with the latticed sculpture less nodulous at the crossings; it also wants the band, the channel is more contracted and produced, and the nodose liræ are absent within the outer lip.

18. Clathurella tenuilirata, n. sp. (Plate I. fig. 18.)

Shell fusiformly turreted, solid, opaque, pale brown; whorls 8, convex, longitudinally ribbed with about eight somewhat compressed prominent ribs, crossed with distant narrow erect ridges that become sharply angular at the intersection, the entire spaces between them being very closely and regularly ornamented with fine hair-like concentric striæ; spire sharp; aperture narrowly ovate; outer lip thin at the edge, variced behind, the interior with a tubercle next the posterior sinus, which is broad and shallow.

Length 4 lines, breadth $1\frac{1}{4}$ line.

Hab. Goat Island, Port Jackson; dredged in 5 fathoms (*Brazier*).

19. Clathurella sculptilis, n. sp. (Plate I. fig. 19.)

Shell fusiformly turreted, moderately solid, pale brown; whorls 7, rounded, a little excavated next the sutures, longitudinally rather strongly costate, with about nine rounded ribs, between which are numerous fine erect longitudinal striæ, which become crescent-shaped on the flattened area below the sutures, and encircled with numerous concentric, somewhat irregular ridges, which are slightly nodulous at the intersections; aperture subpyriform; outer lip thin, sharp, variced externally, slightly sulcate within; columella straight; canal slightly produced and everted; posterior sinus rather deep.

Length 4 lines, breadth $1\frac{1}{2}$ line.

Hab. Dredged near the "Sow and Pigs," Port Jackson (*Brazier*).

20. Clathurella bicolor, n. sp. (Plate I. fig. 20.)

Shell somewhat acuminately turreted, rather solid, pale ash-colour, with the base of the last whorl chocolate-brown; whorls $7\frac{1}{2}$, rounded, somewhat angulate in the middle, longitudinally ribbed and concentrically narrowly ridged, slightly nodulous at the points of intersection; spire acuminate, with the apex sharp and of a brown colour; aperture small, ovate, stained above and below with brown interiorly; outer lip thin, denticulate within and strongly variced behind; posterior sinus broad and rather deep.

Length $3\frac{1}{2}$ lines, breadth 1 line.

Hab. Dredged near the "Sow and Pigs," Port Jackson (*Brazier*).

21. Clathurella brazieri, n. sp. (Plate I. fig. 21.)

Shell elongately turreted, rather solid, pale brown, a little darker on the lower whorl and at the apex; whorls 7, angulated at the upper part, longitudinally plicate and transversely finely ridged; spire convexly acuminated; aperture elongately ovate; outer lip thin, simple within; columella arcuate; channel short, sharply recurved; posterior sinus wide, not very deep.

Length 3 lines, breadth $\frac{3}{4}$ line.

Hab. Dredged near the "Sow and Pigs" (*Brazier*).

22. Clathurella albocincta, n. sp. (Plate I. fig. 22.)

Shell ovately fusiform, moderately solid, whitish, the last whorl stained with brown, with a broad opaque white band in the centre; whorls 5, rounded, longitudinally ribbed with numerous regular nodulous ribs, and latticed with concentric ridges; aperture ovate; outer lip thickened, dentate within; posterior sinus narrow.

Length $2\frac{1}{2}$ lines, breadth 1 line.

Hab. Dredged near the "Sow and Pigs," Port Jackson (*Brazier*).

23. Clathurella bilineata, n. sp. (Plate I. fig. 23.)

Shell ovately turreted, moderately solid, pale straw-colour or light brown, nearly white around the aperture and at the base, with a narrow brown band just below the suture, and a second between the periphery and the base of the last whorl; whorls 6, angulate at the upper part, coarsely longitudinally ribbed and transversely ridged, the interstices very finely decussately striated; aperture acuminately ovate; outer lip arcuate, contracted towards the base, and thickened behind; posterior sinus very shallow.

Length 2 lines, breadth $\frac{3}{4}$ line.

Hab. Dredged near the "Sow and Pigs," Port Jackson (*Brazier*).

24. Fossarina brazieri, n. sp. (Plate I. fig. 24.)

Shell depressedly turbinate, narrowly umbilicate, moderately solid, ashy grey, more or less blotched here and there with purplish brown; whorls $3\frac{1}{2}$, irregularly spirally ridged (one at the periphery, and one near the suture being more prominent than the others) and transversely striated; sutures strongly impressed; spire slightly elevated,

apex obtuse; aperture subcircular; outer lip simple; inner lip arcuate, thin; operculum multispiral.

Diam. maj. $1\frac{3}{4}$, min. 1, height 1 line.

Hab. Under stones, Shark Island, Port Jackson (*Brazier*).

25. Neritina (Vitta) pulcherrima, n. sp. (Plate I. fig. 25).

Shell small, ovate, smooth, shining, generally pale grey, more or less zoned with yellow, and with a white band near the upper part of the whorls, which is ornamented with patches of purplish-black waved lines, the whorl below the band being closely adorned with finer zigzag or undulating lines of the same colour; spire short, apex obtuse; whorls 3, rounded; aperture oblique, semilunar; outer lip thin; columella covered with a white, polished, spreading callus; margin slightly arcuate and crenate in the middle.

Length 2 lines, breadth 1 line.

Hab. Dredged near the "Sow and Pigs" reef, Port Jackson.

A very prettily painted little species of a more rounded form than *N. viridis*, Linn., and easily distinguished by its peculiar style of ornamentation.

26. Liotia speciosa, n. sp. (Plate I. fig. 26.)

Shell rather solid, depressedly orbicular, pale brown, encircled by three prominent ribs, and longitudinally finely distantly plicate, the interstices denticulate; whorls convex, excavated at the sutures; spire with the apex acute, exserted; umbilicus moderate, encircled by a rib similar to those on the body-whorl and decussated by concentric radiating striæ within; aperture circular; outer lip a little thickened; peritreme continuous.

Diam. 1 line, alt. $\frac{1}{2}$ line.

Hab. Double Bay, Port Jackson. Under stones at a very low tide (*Brazier*).

27. Buccinulus niveus, n. sp. (Plate I. fig. 27.)

Shell elongately ovate, rather solid, white, shining; spire acuminate, pointed at the apex; whorls $7\frac{1}{2}$, encircled by numerous unequal, irregular, impressed and finely punctured striæ, which become fewer towards the upper whorls; sutures impressed; outer lip thin, a little sinuous, arcuate; columella with a prominent bilobed fold near the lower part, and a single small one above; inner lip covered by a spreading callus.

Length 6 lines, breadth $2\frac{1}{4}$ lines.

Hab. Dredged near "Sow and Pigs" reef, Port Jackson (*Brazier*).

A species of an ivory-white throughout, in form not unlike *B. affinis* (*Solidula affinis*, A. Ad., Proc. Zool. Soc. 1854, p. 61).

28. Bulimus (Liparus) brazieri, n. sp. (Plate I. fig. 28.)

Shell oblong-ovate, thin, straw-colour, frequently with reddish-brown irregular spots and flames, and sometimes nearly all brown, longitudinally rugosely plicately ribbed and transversely striated, the intersections strongly granular; whorls 5, rather convex, sutures im-

pressed; aperture ovate; outer lip thin; columella nearly straight, white, with a narrow dark brown band behind.

Length 8 lines, breadth 4 lines.

Hab. Sinclair's Range, King George's Sound.

This pretty species belongs to the same natural group as *B. angasiana*, Pf., *B. baconi*, Benson, and *B. mastersi*, Cox, all from the S.W. region of the Australian continent.

29. Corbula venusta, n. sp. (Plate I. fig. 29.)

Shell triangularly ovate, solid, rather ventricose, inequivalve, irregularly rugosely plicately concentrically striated, the striæ finer and more even towards the umboes, white, beneath a thin yellowish epidermis, with a short carnelion-coloured ray at the anterior side of the umbones; umbones tumid, approximating; umbonal ridge strong and angulate; anterior side rounded; posterior side narrowed and subtruncate.

Length 6 lines, alt. 4, lat. 3 lines.

Hab. Dredged on the "Sow and Pigs" bank, Port Jackson.

The only other species of the genus distinguished by the red umbonal ray is, as far as I am aware, *C. marmorata*, Hinds, which is a very much smaller shell, quite smooth, and comes from the west coast of Veragua.

30. Neæra (Leptomya) pura, n. sp. (Plate I. fig. 30.)

Shell thin, semitransparent, white, subovate, rather convex, equilateral, equivalve, ornamented with rather distant concentric raised lines; umbones tumid, rather prominent, approximating; anterior side rounded, posterior side obliquely truncate; ventral margin arcuate, slightly sinuate posteriorly; umbonal ridge distinctly angulate.

Length 6 lines, alt. 5, lat. 3 lines.

Hab. Lane Cove, Port Jackson, New S. Wales; in sandy mud (*Brazier*).

31. Mactra (Spisula) fluviatilis, n. sp. (Plate I. fig. 31.)

Shell elongately ovate, rather compressedly convex, inequilateral, irregularly concentrically very finely ridged, covered with a rusty-brown epidermis; umbones small, submedian; anterior extremity rounded; posterior extremity somewhat produced and acuminately oval; ventral margin arcuate.

Length 6 lines, alt. 4, lat. $2\frac{3}{4}$ lines.

Hab. Dredged in brackish water, in 2 fathoms, Hawkesbury River, New S. Wales (*Brazier*).

32. Crassatella fulvida, n. sp. (Plate I. fig. 32.)

Shell subtriangularly ovate, inequilateral, rather compressed, yellowish, faintly streaked and mottled with pale orange, concentrically strongly ribbed, the interstices rather wider than the ribs; umbones pointed, rather small, approximate, tinged with orange-red; dorsal margin laterally rather concave; ventral margin strongly arcuate;

posterior extremity ovate; anterior extremity rounded; internal margin simple, reddish purple within.

Length $3\frac{1}{2}$ lines, alt. 3, lat. $1\frac{3}{4}$ line.

Hab. Port Jackson; dredged near the "Sow and Pigs" (*Brazier*).

33. Perna confusa, n. sp. (Plate I. fig. 33.)

Shell transverse, concentrically finely striated, olive-brown, paler below the umbonal ridge; umbones tumid, approximate, and almost terminal, the umbonal ridge much raised and roundly angulate; dorsal margin straight, forming an angle with the posterior margin, which is arcuate above and rounded at the end; ventral margin slightly convex anteriorly, incurved behind.

Length 12 lines, alt. 6, lat. 5 lines.

Hab. Lane Cove River, Port Jackson.

Something like *P. fortunei*, but four times the size, more pinched and arcuate, and different in colour.

I adopt the original generic appellation of *Perna* as applied by Messrs. H. & A. Adams to this genus, which has priority over *Modiola* and *Volsella*. The *Perna* of Bruguières (1792) is *Isognomon* of Klein (1753).

34. Limopsis brazieri, n. sp. (Plate I. fig. 34.)

Shell depressedly subtriangularly ovate, subequilateral, whitish, concentrically finely ridged, and very faintly radiately striated, covered with a light brownish epidermis, which extends beyond the margin; umbones submedian, rather prominent.

Length $2\frac{1}{2}$ lines, alt. 2, lat. $1\frac{1}{2}$ line.

Hab. Dredged at the "Sow and Pigs," Port Jackson (*Brazier*).

N.B. I have placed the typical specimens of all the foregoing species in the British Museum.

3. On a Collection of Birds from Savai and Rarotonga Islands in the Pacific. By Dr. G. Hartlaub, F.M.Z.S., and Dr. O. Finsch, C.M.Z.S.

[Received January 2, 1871.]

(Plate II.)

The meritorious efforts of Mr. Johann Cesar Godeffroy, head of the well-known Hamburgian firm, to explore, in connexion with his mercantile undertakings, various parts of our globe to which his vessels resort, have been again successful as regards the avifauna of the Pacific. We have had the pleasure of receiving two small collections of birds: one from the island Savai or Savaihi, made by Mr. Kubary; the other from the small island Rarotonga, made by Mr. A. Garrett.

Savai, the largest of the islands of the Navigator group, in which

Dr. Gräffe collected several years ago for Mr. Godeffroy, has remained nearly unexplored. Only two of its birds are known—namely *Carpophaga pacifica* and the remarkable *Didunculus strigirostris*. Although this latter rare bird is wanting amongst the collections sent by Mr. Kubary, we have had the pleasure to find in them a quite new grallatorial form, our *Pareudiastes*, remarkable for the shortness of its wings, which remind one of those of *Habroptila*. The other species collected by Mr. Kubary are all identical with species from Upolu.

The small island Rarotonga, only eight geographical miles in circumference (?), situated in 21° 22′ S. lat. and 159° 54′ W. long., belongs to the Cook, or Hervey group, and has, as far as we know, never been explored by naturalists. Of the seven species of birds collected by Mr. Garrett in this island, three prove to be new, namely *Monarches dimidiatus*, *Aplonis cinerascens*, and *Ptilinopus rarotongensis*; the others are widely distributed well-known Pacific birds.

We regret that neither of these collectors, whom we have the pleasure of first introducing to public notice, give any notes concerning the habits, breeding, and other peculiarities of these birds. Such additions would have made our paper still more interesting and valuable.

Mr. Andrew Garrett is an American, who has been collecting already several years for the Smithsonian Institution and for the Cambridge Museum, U. S. A. For two years he has been employed for the Museum Godeffroy, and has explored the Paumotu archipelago and the Viti group. A large collection from the latter locality has been lost, unfortunately, by shipwreck.

Mr. Kubary is a Polish gentleman from Warsaw, who was a student of medicine, but was obliged to abandon his country, and was sent in April 1869 by Mr. Godeffroy to the Pacific.

Species from Savai.

1. Strix delicatula, Gould; Finsch et Hartl. Ornith. Centr. Polyn. p. 11.

One specimen (female), agreeing entirely with specimens from Upolu and the Vitis.

Long. al.	caud.	culm.	tars.	dig. med.	
9″ 6‴	4″ 0‴	9½‴	2″ 3‴	14‴	(Savai.)
10 0	4 3	10½	2 2½	15	(Savai.)

"Irides black; bill hornish grey. Native name, *O le lulu*." (*Kubary.*)

From Savai we have already received this species in 1868, in a collection made by Dr. Gräffe.

2. Coriphilus fringillaceus (Gmel.); Finsch et Hartl. *l. c.* p. 25.

Nine specimens, amongst them males and females, which are alike in every respect, as already stated by Dr. Pickering. There is no

difference between these and specimens from the neighbouring island Samoa, and from the Wallis Island Uëa.

Long. al.	caud.	rostr.	
3″ 11‴–4″ 2‴	2″ 4‴–2″ 6‴	5–5½‴	(♂)
4 1	2 4	5½	(♀)

"Irides orange-yellow; bill orange-red; feet orange-yellow. Native name, *Senga* or *Senga wao*." (*Kubary*.)

3. Halcyon recurvirostris (Lafresn.); Finsch et Hartl. *l. c.* p. 41.

Three males and one female; both sexes alike and agreeing with specimens from Upolu, as described by us (*l. c.*). As usual in the members of the subgenus *Todiramphus*, there exists a considerable variation in the intensity of the colours of the underparts. In one male these are, as well as the neck-band, pale buff, as figured in the Atlas of the United States Exploring Expedition (pl. 17); in another male the neck-band and the sides of the body are dark buff, chin and middle of breast and vent nearly white; whereas in a third male the whole underparts, except the chin, are uniform intense buff, darkest on the vent and under tail-coverts; the spot on the occiput also varies from white to dark buff.

Long. al.	caud.	rostr.	latit. a bas.	
2″ 11‴–3″ 0‴	2″–2″ 3‴	13–14‴	6‴	(♂)
3 1	2 1	14	6	(♀)

"Native name, *Tistaro*." (*Kubary*.)

This species was hitherto known only from the Island of Upolu.

4. Collocalia spodiopyga (Peale); Finsch et Hartl. *l. c.* p. 48.

One specimen, similar to others from Upolu and the Vitis.

Long. al.	rectr. ext.	rectr. interm.	tars.
4″ 5‴	23‴	18½‴	4‴

5. Rhipidura nebulosa, Peale; Finsch et Hartl. *l. c.* p. 86.

One specimen in spirits, agreeing with the young bird from Upolu, as described by us, *l. c.*

Long. al.	rectr. med.	rectr. ext.	rostr. a front.	tars.
2″ 6‴	2″ 10‴	2″ 3‴	3¼‴	8‴

6. Amblynura cyanovirens (Peale).

Erythrura cyanovirens, Finsch et Hartl. *l. c.* p. 100.

Two specimens (in different plumages) of the young bird, but not different from Upolu specimens.

One specimen resembles the young, as described by us (*l. c.*); but the whole head is dark green, like the back; some of the feathers on the vertex show narrow edgings of a dull red; the tail-feathers and the upper tail-coverts are also dull red; the upper mandible is black, with a lateral yellow basal spot; the lower mandible is yellow, tipped with black; feet dark.

The other specimen, more advanced in age, has the vertex and cheeks already red as in the old bird, but the upper and under surfaces are still dark green, except a blue tinge on the chin and occiput; bill black, basal half of the lower mandible yellow; feet dark.

Long. al.	caud.	rostr.	alt. a bas.	tars.	dig. med.	
2″ 6‴	13‴	5‴	4½‴	8½‴	6‴	(jun., Savai.)
2 3	12	c. 5	4	8	5½	(jun., Savai.)
2 4	13	5¼	4½	8	6	(ad., Upolu.)

7. Lobiospiza notabilis, Hartl. et Finsch, P. Z. S. 1870, p. 817, pl. xlix.

We are much pleased to find a second specimen of this interesting new form in the collection of Mr. Kubary, from Savai. This specimen, forwarded in spirits, agrees with the type as described *l. c.*, but convinces us also that that, as we had suspected, was only a young bird. The specimen from Savai is apparently in a more advanced state, showing the whole surface of head, the upper tail-coverts, and the outer edges of the rectrices of a dirty pale reddish brown, which colour, having lost its intensity by the influence of the spirit, has been formerly of a vivid red. We are assured of this point by having before us an old specimen of *Amblynura cyanovirens*, in which the red of the head has also changed into a dirty reddish brown. We have reason to suspect that the very old bird of *Lobiospiza* will show a far more brilliant and beautiful plumage.

8. Sturnoides atrifusca (Peale); Finsch et Hartl. *l. c.* p. 107.

Three specimens, in every respect agreeing with specimens from Upolu. There exists some difference in size.

Long. al.	caud.	rostr.	tars.	dig. med.
5″ 4‴–5″ 8‴	3″ 9‴–4″	13‴	16–17‴	11½–12‴

"Native name, *Fuia*." (*Kubary.*)

9. Carpophaga pacifica (Gmel.); Finsch et Hartl. *l. c.* p. 142, et Journ. f. Orn. 1870, p. 134.

Three specimens, agreeing with specimens from Upolu and Tongatabu, and varying in the same way.

One, an old male, with a well-marked protuberance on the base of the bill, resembles a specimen from Upolu, except that the cheeks are also tinged with a delicate vinaceous hue.

Two other specimens, labelled "young males," without a knob, show the head and neck darker grey than in the adult bird. In one the grey of the underparts is tinged very faintly with vinaceous; in the other this colour already exists, but much less vivid than in the adult. The feet are dark brown in the young bird.

Long. al.	caud.	culm.	tars.	dig. med.	
9″ 2‴	5″ 8‴	10¾‴	14‴	15‴	(♂ ad., Savai.)
8 8	5 4	10	14	16	(♂ jun., Savai.)
8 4	5 5	10	14	16	(♂ jun., Savai.)
8 7	4 8	10	14	15	(jun., Rarotonga.)

1/2

O. Finsch pinxt. J. Smit lith. M & N Hanhart imp.

PAREUDIASTES PACIFICUS.

"Bill black; iris black; feet red. Native name, *Fiaui*, or commonly *Lubé*." (*Kubary.*)

Some interesting notes on the habits of the *Lubé* in Tongatabu have been published by Dr. Gräffe (Journ. f. Orn. 1870, p. 408).

10. Rallus pectoralis, Less.; Finsch et Hartl. *l. c.* p. 156.

Four specimens, perfectly identical with others from Upolu, the Vitis, Tongatabu, and Australia.

In two specimens no sign of the cinnamomeous pectoral band is visible; two specimens show this band strongly indicated, although not yet fully developed. The small white spots on the feathers of the upper parts in three specimens form on the basal portion of the hind neck regular narrow cross lines, which in one specimen are still visible on the upper portion of the mantle.

Long. al.	caud.	culm.	tars.	dig. med.
5″–5″ 5‴	1″ 11‴–2″ 5‴	12–16‴	18–20‴	16–19‴

"Bill reddish grey; iris red. Native name *Vea*." (*Kubary.*)

That *Rallus forsteri*, Hartl., is identical with *R. pectoralis* we have proved already (P. Z. S. 1869, p. 548, and Journ. f. Orn. 1870, p. 136). We must also express our doubts concerning *Rallus hypoleucus*, nob. (*l. c.* p. 163), based upon the "Philippine Rail, var. B," Latham, which seems to be nothing more than an albinism of *R. pectoralis*, as suspected by Mr. G. R. Gray.

Pareudiastes*, gen. nov.

Char. gen.—*Rostrum ut in genere* Gallinula, *sed ptilosi ab oculis fere ad nares usque producta: scutello frontali parvo, postice rotundato. Alæ brevissimæ, obtusæ, truncatæ, remigibus* 3–6 *æquali longitudine. Cauda brevissima, lacera, decomposita. Pedes minores quam in* Gallinulis*; digitus medius tarso brevior, externus interno paullo longior; unguibus multo magis curvatis quam in genere* Gallinula.

11. Pareudiastes pacificus, sp. nov. (Plate II.)

Obscure plumbeo-ardesiaca; margine frontali et regione periophthalmica holosericeo-nigris, loris plumulis nigris rarius obsitis; occipite et dorso fusco-olivascente lavatis; glabella dilute flava; rostro dilute rubente; pedibus pallide rubris; alis valde truncato-abbreviatis; cauda vix conspicua.

Long. circa 10″, rost. a fr. 13‴, al. 4″ 2‴, tars. 16‴, dig. med. c. ung. 1″ 8‴.

Head, neck, and under surface dark slate-colour, on the flanks and anal regions changing into olivaceous black; under tail-coverts pure black; margin of the frontal shield, lores, and space round the eyes covered with short velvet-like feathers of a pure black; sides of head, chin, and upper portion of throat also black; occiput, hind neck, and mantle dark olive-brown; rump, upper tail-coverts, and the

* "*Pareudiastes*" (antiquorum) is a water-bird, which comes only in fine weather to land.

rudimentary soft tail-feathers olivaceous black; primaries and secondaries dark brownish black; coverts of the remiges and upper quill-coverts dark olive-brown, somewhat darker than the back; under surface of wing and under quill-coverts dark brownish black.

Bill reddish orange; frontal shield more yellow; legs and feet reddish; claws hornish brown.

"Bill light red, with a yellow frontal shield; legs and feet light red; irides brown-red. Native name *Punæ*." (*Kubary.*)

Long. tota.	alæ.	caud.	rostr. incl. scut.	rostr. a rict.	tars.	tib.	dig. med.	Latit. scut.
c. $10\frac{1}{2}''$	4″ 4‴	16‴	16‴	$14\frac{1}{2}'''$	18‴	6‴	16‴	5‴

The single specimen described above, although marked by the collector, Mr. Kubary, as "young female," is apparently a full-grown bird, and exhibits such great differences from the nearest allied genus *Gallinula* that we cannot avoid separating it as a well marked distinct genus. In its general appearance it much resembles *Gallinula*, but may be at once distinguished by the shortness of its wings, the shortness of its toes, and its nearly rudimentary tail. The bill agrees with that of *Gallinula*; but the frontal shield is not so far extended (as in *G. chloropus*), and, what is of some importance, the singular short velvet-like feathers of the lores advance towards the base of the nostrils into an acute angle, whereas in *Gallinula* they never reach the nostrils. The wings, as mentioned already, are very short, rounded; their feathers very soft, broad, at the end rounded; the third to the sixth quills equal and longest; the second and seventh somewhat shorter; the first one inch shorter than the fourth; the longest secondaries nearly reach the primaries; therefore scarcely any prominent wing-end exists. As regards this singular structure of the wings, *Pareudiastes* seems to be most nearly allied to *Habroptila*, but is quite different from *Gallinula*. The same is the case as regards the tail, which consists of narrow lax feathers, nearly rudimentary. Not less than the wings are the feet different. In *Gallinula* the middle toe is always longer then the tarsus, whereas in *Pareudiastes* the middle toe is considerably shorter; besides, the nails are also shorter and rather more curved than in *Gallinula*.

The eyes seem to be uncommonly large; and this, as well as the other peculiarities, gives some right to suspect that this remarkable form will exhibit also interesting peculiarities in respect to its habits, of which, unfortunately, Mr. Kubary tells us nothing. We are strongly of opinion that *Pareudiastes* is unable to fly, and hope to get more information about it next time from the discoverer.

A second specimen of *Pareudiastes pacificus*, forwarded in spirits, is apparently younger. It shows the shield dirty yellowish; the bill reddish brown, the tip darker brown; feet and legs reddish horn-brown; claws horn-brown.

The measurements of this specimen are as follows:—

Long. tota.	alæ.	caud.	rostr. scut. incl.	rost. a rict.	tars.	tib. med.	dig. med.	Latit. scut.
10″	4″ 4‴	16‴	18‴	15‴	19‴	$6\frac{1}{2}'''$	16‴	$4\frac{1}{4}'''$

The pollex is armed with a short, sharp spine (*spina pollicaris*). The oil-gland is present, with some short feathers at the end. The loral region is feathered sparingly with short velvet-like feathers. Eyes large.

12. Porphyrio vitiensis, Peale; Finsch et Hartl. *l. c.* p. 172; *id.* Journ. f. Orn. 1870, p. 135 (Tonga).

P. samoënsis, Peale.

P. indicus, Cass. (*nec* Horsf.), Unit. St. Expl. Exp. p. 308.

It was Mr. Cassin who first declared the *Porphyrio* of the Navigator group to be identical with the Javan *P. indicus*, Horsf. Not having had an opportunity of comparing specimens from the Navigators, we followed the views of Mr. Cassin without hesitation, although every naturalist who takes a special interest in geographical distribution would consider it as a very strange fact to meet with a Javan species so far east, and this so much the more as the neighbouring Viti group is inhabited by a different species, *P. vitiensis*. In 1868 we got two specimens of *Porphyrio* from Upolu, collected by Dr. Gräffe, and comparing them carefully with specimens from Viti and Java, we became convinced that the *Porphyrio* from the Navigators is by no means the same as the Javan *P. indicus*, but in every respect like *P. vitiensis*, a species which we have since received also from the Tonga group. The collection of Mr. Kubary contains a single specimen from Savai, which agrees very well with a specimen from Upolu, except that the back is darker, more blackish olive-brown, a difference already mentioned by us after examining a specimen from Ovalou (*l. c.* p. 280).

We have no doubt that *P. vitiensis*, Cassin, was founded upon immature birds; for the differences pointed out by Mr. Cassin are chiefly based upon the "much smaller size," a character which is not constant, as remarked already in our book on the Central-Polynesian birds, where also the differences between *P. vitiensis* and *P. indicus* are carefully explained (p. 174). *P. vitiensis*, therefore, undoubtedly is the only species occurring in the Central Polynesian Islands, and *P. indicus* must be struck out of its avifauna. Its size, as usually in *Porphyrio*, varies a good deal.

Long. al.	caud.	rost. incl. scut.	tars.	tib.	dig. med.	
8″ 0‴	2″ 10‴	2″ 4‴	2″ 11‴	17″	2″ 10‴	(Savai.)
8 1	—	2 6	3 0	15	2 7	(Upolu.)
8 0–8 10	3 4	2 1–2 4	2 9–3 1	18	2 8–2 10	(Tonga.)

13. Actitis incanus (Gml.); Finsch & Hartl. *l. c.* p. 184.

Two specimens in winter dress of this widely distributed species.

Long. al.	caud.	rostr.	tars.	dig. med.	
6″ 3‴	2″ 9‴	18‴	15‴	12‴	(Savai.)
6 7	2 7	—	—	—	(Savai.)
5 10–6 4	—	16–17	—	—	(Savai, *Gräffe*.)
5 11	2 6	17	15	12	(Rarotonga.)

This species had already been sent from Savai in 1868 by Dr. Gräffe; amongst the examples were also specimens in summer dress.

Species from Rarotonga.

1. MONARCHES DIMIDIATUS, sp. nov.

♂. *Supra sordide cinerascens, nonnihil fusco-variegatus; remigibus fuscis, rectricibus nigricanti-fuscis; subtus albus, loris interrupte fusco-nigricantibus; subalaribus et subcaudalibus albo fuscoque variis; pedibus plumbeis; rostro plumbeo-cærulescente, apice et tomiis pallidis.*

♀. *Supra dilute fulvo-rufescens, subtus fulvo-albicans; uropygio nigricante vario, plumis omnibus basi nigricantibus; rectricibus pallide rufescentibus, parte apicali latius nigricante, rufescente limbata; tectricibus alarum late rufo-marginatis, remigibus nigricantibus, rufescente stricte limbatis; subalaribus dilute rufis, subcaudalibus pallide fulvis; colli lateribus et pectore lætius vulpinis; rostro et pedibus sic ut in mari tinctis.*

Long. circa 5″ 7‴, rostr. 5½‴, al. 3″ 2‴, caud. 2″ 5‴, tars. 8½‴.

Male. All the upper parts, cheeks and sides of the neck included, dark grey; rump and upper tail-coverts darker, blackish grey; an indistinct pale greyish line on the lores, continued more indistinctly behind the eye; all the underparts white, washed along the sides with grey; thighs and under tail-coverts blackish, tipped with white; under wing-coverts dark grey, margined with white; remiges dark brown, at the basal portion of the inner web margined with white; quill-coverts also dark brown; tail-feathers uniform blackish, darker at the quills; shafts of the mantle-feathers whitish; shafts of the remiges and rectrices black, pale from beneath.

Bill dark plumbeous-blue, at the tips and along the edges of the mandibles margined with bluish white; feet dark plumbeous.

"Irides dark brown; bill, legs, and feet lead-colour." (*Garrett.*)

Another male has the upper parts darker, more slate-coloured, especially on the rump and upper tail-coverts, whereas a third male specimen shows the upper parts lighter, more decidedly grey than in the first described specimen; in this the underparts are also of a purer white, including the under tail-coverts, which are only at the base dark grey.

Female. All the upper parts, sides of the neck, and head vivid rufescent fulvous, the feathers on the mantle and rump dark brown at the base; the rump, therefore, is variegated more or less with dark brown; all the underparts fulvous, but considerably lighter than the back, and at the middle of the vent nearly white; remiges dark brown, margined on the inner web with white; the primaries on the outer web with a broad pale fulvous margin, broader and paler towards the base, the secondaries with a narrow rufous margin along the outer web; coverts of the primaries and secondaries dark brown, margined and tipped with rufous; smaller wing-coverts fulvous like the back; tail-feathers fulvous, much paler on the inner web, on the apical third dark brown, this colour much paler on the external

feathers, which are margined with pale fulvous white; shafts of the remiges and rectrices dark.

Bill hornish black; feet dark plumbeous.

Another female shows the underparts much lighter, and the chin variegated with some pure white feathers.

A third female is lighter above and beneath; the underparts are whitish fulvous, the same as the tail-feathers; the remiges and their coverts appear nearly uniform dark brown, having the fulvous outer margins very narrow and indistinct. Bill black, base of mandible yellow.

Long. tota.	alæ.	rectr. int.	rectr. ext.	rostr.	tars.	dig. med.	
c. $5\frac{3}{4}''$	2″ 11‴–3″ 2‴	2″ 4‴–2″ 5‴	2″–2″ 1‴	$5\frac{1}{2}$–6‴	9–$9\frac{1}{2}$‴	6‴	(♂, 3 spec.)
—	2 10 –3 1	2 3 –2 5	2 0	6	$9\frac{1}{2}$	6–$6\frac{1}{2}$	(♀, 3 spec.)

This unquestionably new species is typical. The totally different coloured female, as is usual in the members of this genus, resembles very much the female of *Monarches niger* (*Muscicapa lutea*, Gml.), but may be distinguished at once by its much smaller size.

Of the habits of this bird no notice is given by Mr. Garrett, who discovered it. The species is represented by *M. niger* in the Societies and Marquesas archipelagos.

2. Aplonis cinerascens, sp. nov.

Fusco-cinerascens; pileo pure fusco, loris holosericeo-fuscis: subtus distinctius grisescens; uropygii plumis et supracaudalibus fuscis, apice late cinerascentibus; remigibus et rectricibus fuscis; crisso et subcaudalibus sordide albidis; subalaribus pallide fusco-cinerascentibus; rostro et pedibus nigris.

Long. circa $7\frac{1}{2}''$, rostr. a fr. 9‴, al. 4″ 6‴, caud. 2″ 6‴, tars. 13‴.

Adult. Grey-brown; underparts paler and more decided grey, having the feathers at the end margined with grey; the feathers on the rump and upper tail-coverts also with greyish margins, which on the upper tail-coverts are nearly whitish, but not so distinctly marked as on the underside; head decided brown, with a slight coppery glitter; vent and under tail-coverts dirty white; under wing-coverts pale greyish brown, with whitish margins; remiges dark brown, on the margin of the inner webs paler; the inner secondaries with a very narrow pale margin along the outer vane, forming an indistinct pale stripe; tail-feathers dark brown; shafts of the remiges and rectrices blackish, pale from beneath; feathers of the mantle with very narrow pale shafts, which also are visible on the feathers of the breast. Bill and feet hornish black.

"Irides dark slate; bill, legs, and feet light bluish slate." (*Garrett.*)

Four other specimens agree with the description above; in some the grey end-margins on the breast, rump, and upper tail-coverts are so indistinct as to be nearly wanting; and thus the whole bird appears to be of a more uniform brown.

Long. tota.	alæ.	caud.	rostr.	tars.	dig. med.	
c. $7\frac{1}{2}''$	4″ 3‴–4″ 8‴	2″ 6‴–2″ 8‴	9–$9\frac{1}{2}$‴	13–14‴	9–$9\frac{1}{2}$‴	(5 specim.)

This typical *Aplonis* is so distinct in coloration and size that it can hardly be confounded with any other species. We need not, therefore, give any comparison.

3. Ptilinopus rarotongensis, sp. nov.

Supra psittacino-viridis; pileo intense violascenti-roseo, stricte flavo circumdato, fronte pallide fuscescente; scapularibus et alarum tectricibus saturate viridibus, marginibus externis dilute flavis; remigibus nigris, late viridi marginatis; subalaribus cinereo et flavido variis; rectricibus duabus mediis viridibus, reliquis pogonio externo viridibus, interno griseo-nigricantibus, omnibus apice late canescente, flavido limbato; gula sordide albida, colli lateribus, pectore superiore colloque postico dilute cærulescenti-cinereis, hinc inde virescenti-flavido variis, pectore inferiore abdomineque flavis, lateribus cinerascente adumbratis; macula indefinita epigastrii media vinaceo-purpurea; subcaudalibus flavis; rostro et pedibus plumbeis, illo apice pallido; iride flava.

Long. circa $8\frac{1}{4}''$, rostr. a fr. $5\frac{1}{2}'''$, al. $5''$, caud. $3''\,2'''$, tars. $11'''$.

Adult. Front and vertex purplish violet red, surrounded by a narrow indistinct line of yellow; occiput, sides of head, neck, crop, and upper part of breast delicate grey, the feathers of the latter bifurcated and with a pale yellow cross band; chin and middle of throat white, washed with pale yellow; breast and remainder of underparts yellow, purer on the vent and under tail-coverts, paler on the anal region; the sides washed with pale greyish green, the same as the feathered tarsus; on the middle of the lower portion of the breast a large spot of dark purplish red; back and upper parts vivid grass-green; primaries and their coverts on the outer web and end brilliant dark green, with a very narrow but distinct white margin, the inner web black; secondaries also dark green, but with a somewhat broader yellow margin along the outer web; coverts of the secondaries dark green, narrowly margined externally and at the end with yellow; larger shoulder-coverts brilliant dark green, broadly margined at the end with grass-green; wing beneath ashy grey; under wing-coverts delicate grey like the neck; tail dark green with a broad greyish-white end; the feathers, except the two middle ones, are on the inner web dark grey, crossed above the white end by a blackish cross band; the white end is margined narrowly with pale yellow; tail beneath dark grey, at the end broadly white.

Bill plumbeous, tipped with pale horn-colour; feet reddish brown; nails dark.

"Irides yellow; bill brownish yellow; legs purple red." (*Garrett.*)

In the young bird the vertex and hind neck are green, like the back; front and forehead covered with a pale violet-purple patch; sides of head and neck grey washed with green, the crop and upper portion of breast with greenish yellow; the underparts are of a less brilliant yellow; the sides darker greyish-green; the red pectoral patch is indicated only by some dirty purplish feathers; the pale

yellow margins at the ends of the coverts of the secondaries are broader and form a distinct cross line; the white end-portion of the tail-feathers is washed at the outer web and apex with green; bill and feet brown.

Long. tota.	alæ.	caud.	rostr. a front.	rostr. a rict.	tars.	dig. med.	ung.	
c. 8″	5″ 0‴	3″ 1‴	$5\frac{1}{4}$‴	$8\frac{1}{2}$‴	$11\frac{1}{2}$‴	9‴	3‴	(ad.)
—	4 7	2 8	5	$7\frac{1}{2}$	11	9	—	(jun.)

In our work on the birds of Central Polynesia, we have already shown that the different groups of islands in the Pacific are inhabited by different species of the genus *Ptilinopus*, which, resembling each other at first sight very much, nevertheless exhibit constant characters to distinguish them with certainty, as pointed out in our monograph of the Polynesian species of *Ptilinopus*. Since this monograph was written, we have declared the *Ptilinopus* of the Pelew group (our *Pt. pelewensis*, P. Z. S. 1868, p. 7) to be a distinct species; and now we have again occasion to introduce a *Ptilinopus* from the Cook's islands as new. *Pt. rarotongensis* is most nearly allied to *Pt. chrysogaster*, Gray, from Huaheine (Society's Islands), but may be distinguished at once by the dark red pectoral patch, which in *Pt. chrysogaster* is wanting. Besides, this latter species has the forehead and vertex pale rose, and the secondaries and upper quill-coverts are shining blue-green, with broad yellow margins. *Pt. roseicapillus*, Less. (*Pt. purpureocinctus*, Gray), from the Mariannes, also resembles it in possessing a red patch on the middle of the breast, but is otherwise quite different, the whole upper surface of the head being red as well as a patch on the base of the lower mandible; lower breast green, remainder of underparts orange. With the other species (*Pt. fasciatus* from the Vitis and Navigators, *Pt. porphyraceus* from Tonga, &c), *Pt. rarotongensis* cannot be confounded. The green of its plumage shows none of the metallic or coppery lustre observed in most of the other species.

We may remark that Mr. G. R. Gray has already published a *Pt. chalcurus* (B. of the Tropical Isl. of the Pacific, 1859, p. 37), founded on a specimen in the British Museum, said to be from the Hervey or Cook's archipelago. So far as can be told from the very short diagnosis ("much resembling *Pt. coralensis*, Peale, but front and vertex shining greyish purplish"), this so-called species has nothing whatever to do with our *Pt. rarotongensis*.

4. Carpophaga pacifica (Gml.).

A young bird, resembling the young males from Savai described above, but having the underparts, instead of vinaceous, of a faint dirty ochre-brownish tinge, darker on the vent, the under tail-coverts lighter chestnut, base of bill without knob.

5. Actitis incanus (Gml.).

One specimen in winter plumage.